

### **REMARKS**

This is in full and timely response to the final Office Action dated June 21, 2006. The present Amendment amends claims 1-21. No new matter has been added.

Entry of this Amendment is proper under 37 C.F.R. § 1.116 since the amendment: (a) places the application in condition for allowance (for the reasons discussed herein); (b) does not raise any new issues requiring further search and/or consideration; and (c) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of this amendment is respectfully requested. Reexamination and reconsideration in light of the above amendments and the following remarks are respectfully requested.

#### **Drawings**

The final Office Action objected to the drawings under 37 CFR 1.83(a). Specifically, the final Office Action states that “the main controlling unit, secondary controlling unit, secondary-control executing unit, discharge-direction changing unit, reference-direction setting unit, discharge-angle setting unit, and resolution increasing unit must be shown [in the drawings] or cancelled from the claims.” Applicant respectfully traverses this objection.

These features are shown in the drawings. For example, Fig. 21 shows all of these features. Moreover, Figs. 3A and 3B demonstrate the features of the discharge-direction changing unit or main controlling unit and secondary controlling unit; Fig. 6 demonstrates the features of the secondary-control executing unit and the reference-direction setting unit; Figs. 7, 8A, 8B, and 9 demonstrate the features of the discharge-angle setting unit; and Fig 15 demonstrates the features of the resolution increasing unit. Therefore, because the drawings are in compliance with 37 CFR 1.83(a), withdrawal of this objection is courteously solicited.

#### **Claim Objections**

The final Office Action objected to the claims for informalities. Specifically, claim 1 was

objected to for the limitation “the droplet discharged by said each liquid discharger...”. Claim 1 is currently amended to read “the droplets.” Withdrawal of this objection is therefore courteously solicited.

Claim 1 was also objected to for the feature of “each nozzle” because, allegedly, this feature is not supported in the specification. Claim 1 now reads “respective nozzle” so this objection is moot. Moreover, applicant notes that at least paragraphs 61, 62, 271, and 272 support the features of claim 1. Because this objection is now moot, and because the features of claim 1 are supported by the specification, withdrawal of this objection is courteously solicited.

Claims 2-4, 16, 17, and 19 were objected to for insufficient antecedent basis. These claims have been amended accordingly. Withdrawal of this objection is courteously solicited.

#### Claim Rejections- 35 U.S.C. § 102

In the Action, claims 1-12, 14, and 16-21 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2002/0021324 to Yamada et al. (“Yamada”). This rejection is respectfully traversed.

In response to Applicant’s April 5, 2006 Amendment, the final Office Action alleges that “applicant is claiming control of each liquid discharger ... whereby each liquid discharger has a plurality of nozzles.” Applicant disagrees with the final Office Action’s interpretation of the claims. However, claims 1, 2, 3, 4, 16, 17, 18, and 19 have been amended to clarify the features of the claims. Specifically, claims 1-4 read “a liquid discharge apparatus having a head with a plurality of liquid dischargers aligned in a row, each liquid discharger including a nozzle,” and claims 16-19 read “a method for discharging liquid from liquid dischargers, each liquid discharger having a nozzle.”

Although the claims are not limited to the Figures, Figs. 3A, 3B, 6, 7, 8A, 8B, and 9 are helpful in demonstrating a liquid discharger. The liquid discharger in Figs. 3A and B includes a heat generator 13, an ink chamber 12, and a nozzle 18. See paragraphs 62 and 63 of the specification. From the nozzle of the liquid discharger, ink droplets can be discharged along a

plurality of trajectories. *See, e.g.*, Figs. 6, 7, 9 (showing 10 different liquid dischargers), 8A, and 8B (showing 5 different liquid dischargers).

*Claims 1, 12, 16, 20 & 21*

Independent claim 1 recites, *inter alia*, a liquid discharge apparatus with a plurality of liquid dischargers comprising, a secondary-control executing unit **for individually setting** whether or not the secondary controlling unit for **each liquid discharger is operated**.

Independent claim 16 recites, *inter alia*, a method for discharging liquid from liquid dischargers, each liquid discharger having a nozzle, comprising the steps of **individually determining** whether or not a secondary controlling unit **is operated for each liquid discharger**.

In contrast, although Yamada arguably discloses an ink jet recording device with a plurality of electrodes that receive charging-deflecting control signals via a position control unit, Yamada fails to disclose, teach, or suggest *at least* a secondary-control executing unit **for individually setting** whether or not the secondary controlling unit for **each liquid discharger is operated** as recited in claim 1. *See, e.g.*, paragraphs 49 and 57, and Figs. 1 & 2. In fact, Yamada arguably discloses the opposite of **individually setting** whether or not the secondary controlling unit for **each liquid discharger is operated** because, in Yamada, each pair of electrodes for deflecting ink droplets are associated with a plurality of nozzles so that the charging-deflecting control signals applied to the electrodes affect a plurality of nozzles. *See, e.g.*, paragraphs 48, 49, 57 and Figs. 1 & 2.

Likewise, although Yamada arguably discloses that each pair of electrodes are associated with a plurality of nozzles, Yamada fails to disclose, teach, or suggest *at least* **individually determining** whether or not a secondary controlling unit **is operated for each liquid discharger** as recited in claim 16. *See, e.g.*, paragraphs 48, 49, 57 and Figs. 1 & 2.

Accordingly, because Yamada fails to disclose, teach or suggest each and every limitation of claims 1 and 16, a *prima facie* anticipation rejection has not been established, and withdrawal of this rejection is respectfully requested. *See, e.g.*, *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference”).

Moreover, aside from the novel limitations recited therein, claims 12 and 20, being dependent upon allowable base claim 1, are also allowable at least by virtue of its dependency upon allowable claim 1. Aside from the novel limitations recited therein, claim 21, being dependent upon allowable base claim 1, is also allowable at least by virtue of its dependency upon allowable claim 16. Withdrawal of the rejection of these claims is therefore courteously solicited.

*Claims 2, 5-11, 14, & 17*

Independent claim 2 recites, *inter alia*, a liquid discharge apparatus having a head with a plurality of liquid dischargers comprising, a reference-direction setting unit for **individually selecting for said each liquid discharger** one of the directions of the droplet as a **reference direction**.

Independent claim 17 recites, *inter alia*, a method for discharging liquid from liquid dischargers, each liquid discharger having a nozzle, comprising the steps of **individually selecting for said each liquid discharger** one of the directions as a **reference direction**.

In contrast, although Yamada arguably discloses an ink jet recording device with a plurality of electrodes that receive charging-deflecting control signals from a charging-deflecting control-signal generating unit, Yamada fails to disclose, teach, or suggest *at least* **individually selecting for said each liquid discharger** one of the directions as a reference direction as recited in claims 2 and 17. *See, e.g.*, paragraph 50 and Figs. 1 & 2. In fact, Yamada arguably discloses the opposite of **individually selecting for said each liquid discharger** one of the directions as a reference direction because, in Yamada, each pair of electrodes for deflecting ink droplets are associated with a plurality of nozzles so that the charging-deflecting control signals applied to the electrodes affect a plurality of nozzles. *See, e.g.*, paragraphs 48, 49 and Figs. 1 & 2.

Accordingly, because Yamada fails to disclose, teach or suggest each and every limitation of claims 2 and 17, a *prima facie* anticipation rejection has not been established, and withdrawal of this rejection is respectfully requested. *See, e.g., Verdegaal Bros.*, 814 F.2d at 631 (Fed. Cir. 1987) (“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference”).

Moreover, aside from the novel limitations recited therein, claims 5-11, 14, and 20, being dependent upon allowable base claim 2, are also allowable at least by virtue of their dependency upon allowable claim 2. Also, aside from the novel limitations recited therein, claim 21, being dependent upon allowable base claim 17, is also allowable at least by virtue of its dependency upon allowable claim 17. Withdrawal of the rejection of these claims is therefore courteously solicited.

*Claims 3, 5-11, 14 & 18*

Independent claim 3 recites, *inter alia*, a liquid discharge apparatus having a head with a plurality of liquid dischargers aligned in a row, each liquid discharger including a nozzle, comprising, a discharge-angle setting unit for **individually selecting for said each liquid discharger discharge angles** for said droplet discharged from said each liquid discharger.

Independent claim 18 recites, *inter alia*, a method for discharging liquid from liquid dischargers, each liquid discharger having a nozzle, comprising the steps of, **setting a discharge angle** of the droplets **independently for said each liquid discharger**.

In contrast, although Yamada arguably discloses an ink jet recording device with a plurality of electrodes that receive charging-deflecting control signals via a recorded-dot-group position control unit and a charging-deflecting control-signal generating unit, Yamada fails to disclose, teach, or suggest *at least* a discharge-angle setting unit for **individually selecting for said each liquid discharger discharge angles** for said droplet discharged from said each liquid discharger as recited in claim 3. *See, e.g.*, paragraphs 49, 50, 54-57 and Figs. 1 & 2. In fact, Yamada arguably discloses the opposite of **individually selecting for said each liquid discharger discharge angles** for the droplet discharged from said each liquid discharger because, in Yamada, each pair of electrodes for deflecting ink droplets are associated with a plurality of nozzles so that the charging-deflecting control signals applied to the electrodes affect a plurality of nozzles. *See, e.g.*, paragraphs 48, 49 and Figs. 1 & 2.

Likewise, although Yamada arguably discloses an ink jet recording device with a plurality of electrodes that receive charging-deflecting control signals via a recorded-dot-group position control unit and a charging-deflecting control-signal generating unit, Yamada fails to disclose, teach, or

suggest *at least* **setting a discharge angle** of the droplets **independently for said each liquid discharger** as recited in claim 18. *See, e.g.*, paragraphs 49, 50, 54-57 and Figs. 1 & 2.

Accordingly, because Yamada fails to disclose, teach or suggest each and every limitation of claims 3 and 18, a *prima facie* anticipation rejection has not been established, and withdrawal of this rejection is respectfully requested. *See, e.g., Verdegaal Bros.*, 814 F.2d at 631.

Moreover, aside from the novel limitations recited therein, claims 5-11, 14, and 20, being dependent upon allowable base claim 3, are also allowable at least by virtue of their dependency upon allowable claim 3. Also, aside from the novel limitations recited therein, claim 21, being dependent upon allowable base claim 18, is also allowable at least by virtue of its dependency upon allowable claim 18. Withdrawal of the rejection of these claims is therefore courteously solicited.

*Claims 4-11, 14 & 19*

Independent claim 4 recites, *inter alia*, a liquid discharge apparatus having a head with a plurality of liquid dischargers aligned in a row, each liquid discharger including a nozzle, comprising, a discharge-angle setting unit for **individually setting for said each liquid discharger discharge angles** for each droplet discharged from said each liquid discharger, and a reference-direction setting unit for **individually selecting for said each liquid discharger one of the directions** of the droplet as a **reference direction**.

Independent claim 19 recites, *inter alia*, a method for discharging liquid from liquid dischargers, each liquid discharger having a nozzle, comprising the steps of, **individually selecting for said each liquid discharger one of the directions as a reference direction**, and **setting a discharge angle** of the droplets **independently for each liquid discharger**.

For reasons essentially similar to those set forth above with respect to independent claims 2 and 3, Yamada fails to disclose, teach, or suggest *at least* **individually setting for said each liquid discharger discharge angles** for each droplet discharged from said each liquid discharger, and a reference-direction setting unit for **individually selecting for said each liquid discharger one of the directions** of the droplet as a **reference direction** as recited in claim 4. For reasons essentially similar to those set forth above with respect to independent claims 17 and 18, Yamada fails to disclose, teach, or suggest *at least* **individually selecting for said each liquid discharger one of**

the directions as **a reference direction**, and **setting a discharge angle** of the droplets **independently for each liquid discharger** as recited in claim 19. Accordingly, a *prima facie* anticipation rejection has not been established with respect to claims 4 and 19, and withdrawal of the rejection of these claims is respectfully requested.

Moreover, aside from the novel limitations recited therein, claims 5-11, 14, and 20, being dependent upon allowable base claim 4, are also allowable at least by virtue of their dependency upon allowable claim 4. Also, aside from the novel limitations recited therein, claim 21, being dependent upon allowable base claim 19, is also allowable at least by virtue of its dependency upon allowable claim 19. Withdrawal of the rejection of these claims is therefore courteously solicited.

Claim Rejections- 35 U.S.C. § 103

In the Action, claims 13 and 15 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yamada in view of U.S. Patent No. 5,754,201 to Ishinaga et al. ("Ishinaga"). This rejection is respectfully traversed.

Claims 13 and 15 depend from claim 1. By virtue of this dependency, Applicant submits that claims 13 and 15 are allowable for at least the same reasons given above with respect to claim 1. In addition, Applicant submits that claims 13 and 15 are further distinguished over Yamada and Ishinaga by the additional elements recited therein, and particularly with respect to each claimed combination. Applicant respectfully requests, therefore, that the rejection of claims 13 and 15 under 35 U.S.C. § 103(a) be withdrawn, and these claims be allowed.

Conclusion

For at least the foregoing reasons, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the examiner is respectfully requested to pass this application to issue. If the examiner has any comments or suggestions that could place this application in even better form, the examiner is invited to telephone the undersigned attorney at the below-listed number.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. SON-2918 from which the undersigned is authorized to draw.

Dated: November 21, 2006

Respectfully submitted,

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